

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 09/07/75	3. REPORT TYPE AND DATES COVERED
4. TITLE AND SUBTITLE DETERMINATION OF DECONTAMINATION CRITERIA FOR DIMP AND DCPD (U)		5. FUNDING NUMBERS DAMD 17 75 C 5069
6. AUTHOR(S) O'DONOVAN, P.		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) AEROJET ORDNANCE & MANUFACTURING COMPANY DOWNEY, CA		8. PERFORMING ORGANIZATION REPORT NUMBER 81327R08
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) FORT DETRICK (FREDERICK, MD.) FREDERICK, MD		10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES		
12a. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED		12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words) THIS IS A PROGRESS REPORT ON AEROJET'S STUDIES OF EXPERIMENTS CURRENTLY UNDERWAY (E.G., PLANT GROWTH AND DIMP AND DCPD LYSIMETER TESTS). THE SIGNIFICANT CHANGES BEING CONSIDERED FOR THE TEST PLAN ARE AN INCREASE IN THE NUMBER OF TEST SPECIES FROM SEVEN TO TEN AND THE ADDITION OF RADIO TRACER TECHNIQUES TO THE INITIAL RANGE FINDING EXPERIMENTS. THE INDIVIDUAL TUB APPARATUS FOR THE RANGE FINDING EXPERIMENTS HAS BEEN SET UP AND IS BEING TESTED WITH IMMATURE JUNIPER AND ROSE PLANTS. ALL SYSTEMS ARE OPERABLE AND THE TEST PLANTS SEEM TO BE THRIVING. DISTILLED WATER HAS BEEN SELECTED AS THE MEDIUM OF CHOICE FOR USE IN THE EXPERIMENTAL PROGRAM. SHIPMENTS OF BOTH DIMP AND DCPD HAVE BEEN RECEIVED.		
DTIC QUALITY INSPECTED 3		
14. SUBJECT TERMS CONTAMINANTS, FLORA, SOIL, CHEMICALS, LYSIMETER		15. NUMBER OF PAGES
		16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT
		20. LIMITATION OF ABSTRACT

81327R08  
Original

AEROJET ORDNANCE AND MANUFACTURING COMPANY  
9236 East Hall Road  
Downey, CA 90241

81327R08  
original

DETERMINATION OF DECONTAMINATION CRITERIA

FOR

DIMP AND DCPD (U)

Report No. 1953-01(02)MP

Contract DAMD-17-75-C-5069

Accession For	
NTIS	CRA&I
DTIC	TAB
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution / _____	
Availability Codes	
Dist	Avail and/or Special
A-1	

Rocky Mountain Arsenal  
Information Center  
Commerce City, Colorado

To

U.S. Army, Ft. Detrick  
Fredrick, Maryland 21701

Prepared by:

P. A. O'Donovan  
P. A. O'Donovan

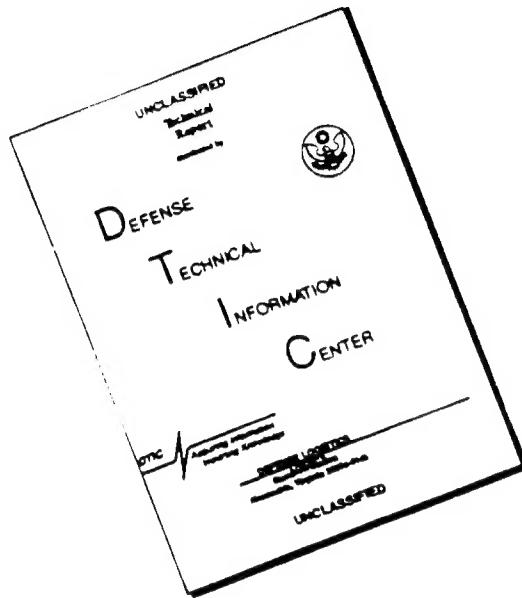
Date: 7 September 1975

No. of Pages: 6

FILE COPY

19950127 125

# DISCLAIMER NOTICE



THIS DOCUMENT IS BEST  
QUALITY AVAILABLE. THE COPY  
FURNISHED TO DTIC CONTAINED  
A SIGNIFICANT NUMBER OF  
PAGES WHICH DO NOT  
REPRODUCE LEGIBLY.

Progress on the items proposed for action during August 1975, is discussed in the following paragraphs.

**A. Analysis of Chino Hills Water Supply**

The well water which is normally supplied to the laboratory area has been analyzed to determine its suitability as an irrigation medium.

The pertinent portions of the report are shown in Table I.

Additional considerations, including closer control of water quality, have led to the selection of distilled water as the medium of choice for use in the experimental program.

**B. Test Plan Preparation**

A preliminary test plan has been submitted by AOMC to the sponsor for approval and/or modification. This plan is currently undergoing modification. The significant changes being considered for the test plan are an increase in the number of test species from seven to ten and the addition of radio tracer techniques to the initial range finding experiments.

**C. Range Finding Experiments**

The individual tub apparatus for the range finding experiments has been set up and is being tested with immature juniper and rose plants. All systems are operable and the plants seem to be thriving. Germination trays have been set up and the fescue, wheat, and corn have been successfully germinated. Radish, bean, tomato, carrot and sugar beet seeds have been obtained and germination tests are underway. The sugar beet seeds were obtained from the Elmore Company of Brawley, California. All the other seeds were commercially available locally.

TABLE I

## Analysis of Chino Hills Well Water - 8-4-75

## Measured:

Specific Conductance $\mu$ mho/cm @ 25°C	1386
pH	7.60
SiO <sub>2</sub>	21.7 ppm
Ca	58.4 "
Mg	25.0 "
Na	180.8 "
K	10.0 "
CO <sub>3</sub> <sup>=</sup>	0 "
HCO <sub>3</sub> <sup>-</sup>	475.8 "
SO <sub>4</sub> <sup>=</sup>	180.7 "
Cl <sup>-</sup>	48.0 "
NO <sub>3</sub> <sup>-</sup>	16.8 "
Fe	< 0.02 "
Cu	< 0.02 "
B	0.05 "

## Calculated:

Total Alkalinity	390 ppm
Total Solids	995.5 "
Total Hardness	249 "
Temporary Hardness	249 "
Corrosion Index	+ 0.43

#### D. Chemical and Analytical Preparation

Shipments of both DIMP and DCPD have been received. Analysis by gas-liquid chromatography (GLC) using a thermal conductivity detector indicate that the DCPD is in excess of 96% pure. A chromatogram of this material can be seen in Figure 1. The DIMP has been analyzed also by GLC. There is some inconsistency in the analysis, however, and it is being repeated. A typical chromatogram of this DIMP, run undiluted, is shown in Fig. 2. Consultation is underway with the vendor to assist in establishing the characteristics of the material.

The alkaline flame ionization phosphorus detector (AFID) and flame ionization detector (FID) have also been utilized to obtain base line data chromatograms on the two materials.

Sufficient chemicals to prepare nutrient baths for the large scale hydroponic experiments have been ordered.

#### E. Lysimeter Preparation

Twenty 55-gallon drums have been obtained. These were converted to ten lysimeter bodies of 69 inches in height by attaching one drum to the top of another and removing all but the bottom drum end. Threaded drain holes are provided in the bottom of each lysimeter. A stand has been constructed to hold the apparatus approximately 12 inches above the ground for access to the drain hole.

#### F. Laboratory Soil Tests

The laboratory apparatus has been constructed for the preliminary soil/agent exposure tests outlined in the test plan. Local top soil from a remote area of the Chino Hills facility of AOMC has been obtained and prepared (sieved and dried) for use in this apparatus.

DATE 8-28-75 SAMPLE # 2

INST. GC-2 ANALYST POD

STARTING TEMP. 110°C MAX. TEMP 110°C

PROGRAM RATE - FLOW RATE 20PSI

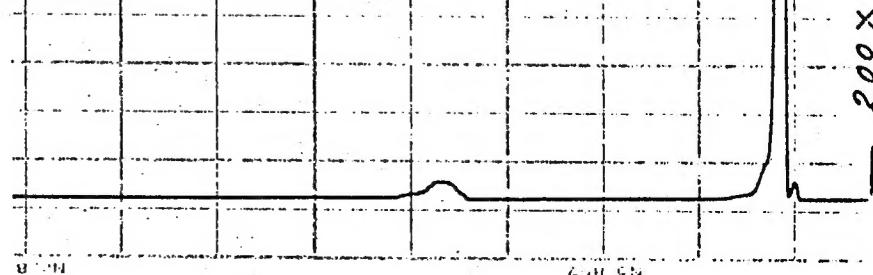
BRIDGE CURRENT <sup>200</sup>mA SAMPLE VOL <sup>0.7</sup>2

INJECTION PORT MAX. BLOCK 220°C

COLUMN SE-52 3.2% on ChromoG-DCMS <sup>60/80</sup>

SAMPLE Dicyclopentadiene MCB

Figure 1.



DATE 0-10-73 SAMPLE # 1

1.5 MIN

INST. GC-2 ANALYST POD

STARTING TEMP. 110°C MAX. TEMP 110°C

PROGRAM RATE = FLOW RATE 20PSI

BRIDGE CURRENT  $200 \text{ mA}$  SAMPLE VOL  $0.5 \text{ ml}$

INJECTION PORT MAX. BLOCK 220°C

COLUMN SE-52 3.2% ON CHROMO-G-DCHS 6% 80

SAMPLE DIMP LOT 2X3 in GLASS

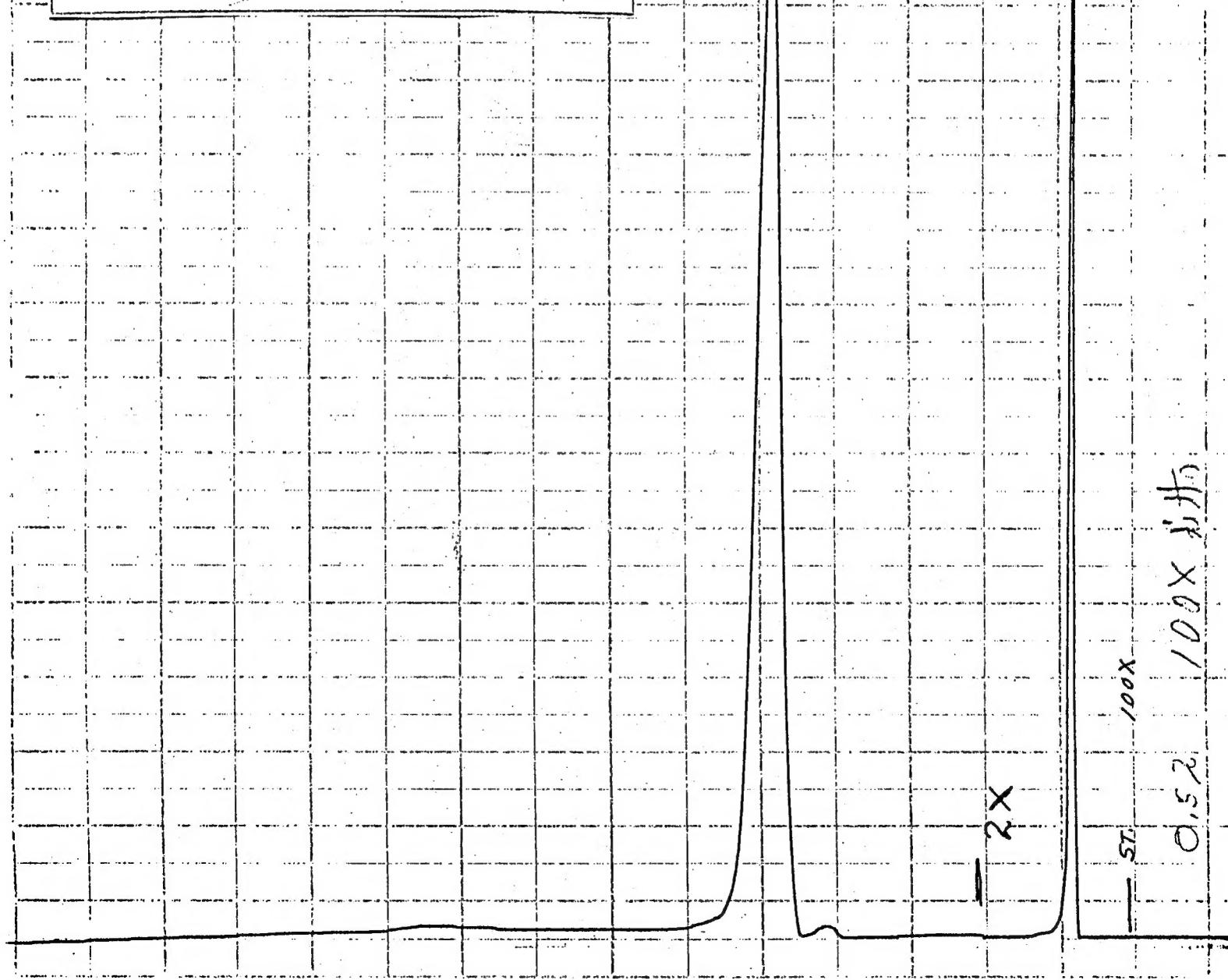


Figure 2.

## Proposed Activity During September 1975

During the coming month the following activities will be pursued:

- o Resolution of the inconsistencies in the DIMP purity analysis.
- o Location of a source for radioactive DIMP and DCPD.
- o Inoculation of laboratory scale soil/agent compatibility tests with DIMP and DCPD and initial measurements thereon.
- o Make preparations for radioactive tracer measurements in plant materials.
- o Complete germination tests of all seeds to be used in plant growth experiments.
- o Initiate plant growth experiments depending on proper agent material availability.
- o Complete construction of lysimeter apparatus and finalize lysimeter test plan.